UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,199	12/05/2000	Donald J. Kerfeld	10247US01	7264

7590 10/03/2003

Attention: Eric D. Levinson
Imation Corp.
Legal Affairs
P.O. Box 64898
St. Paul, MN 55164-0898

EXAMINER	
UHLIR, NIKOLAS J	

ART UNIT	PAPER NUMBER
1773	9

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/730,199	Applicant(s) KERFELD ET AL.
	Examiner Nikolas J. Uhlir	Art Unit 1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-17 and 20-43* is/are pending in the application.

4a) Of the above claim(s) *33-43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-17 and 20-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This office action is in response to the amendment/arguments dated 7/15/03. The examiner has carefully considered the applicants submission and has deemed applicant's amendment/arguments persuasive in overcoming the prior applied 35 U.S.C 102(b) rejection. Accordingly, this rejection is hereby withdrawn. However, applicant's arguments are deemed to be unpersuasive in overcoming the cited prior art. A detailed analysis of the applicant's arguments is found in the section below entitled, "Response to Arguments."

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3-6, 8-17, 20-27, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis et al. (US4519065) in view of Davis et al. (PCT/US00/03644).

4. Claim 1 requires a data storage medium comprising a first layer comprising a substrate; a second layer including a polymer, the second layer exhibiting surface variations; and a third layer including a magnetic recording material and substantially conforming to the surface variations of the second layer.

5. As written, claim 1 does not require a particular ordering of the layers, and thus claim 1 has been interpreted to be open to any data storage medium having the required 3 layers in any order, so long as the magnetic recording layer conforms substantially to the polymer having surface variations.

6. Regarding claim 1, Lewis et al. (Lewis) teaches metallized information carrying discs, "more particularly information carrying discs which carry coded information which is convertible (i.e. electronically decoded) to electrical signals for such varied uses as sound recording, audio/visual recordings, or computer information retrieval systems." Id. at column 1, lines 8-15. Suitable discs for this purpose comprise a base 11, comprising a substrate 12 (equivalent to applicants claimed 1st layer comprising a substrate) carrying a coating 14 which is given surface structure such as depressions through an embossing step. Id. at column 2, lines 46-51 and figure 2. This coating is suitably an embossable polymeric material, and is formed from materials such as thermoplastic or heat softenable radiation curable polymers. Id at column 5, lines 33-35. It is the examiners position that this embossed polymer layer is equivalent to the applicants claimed polymer having surface variations. Lewis further teaches that the information carrying disc comprises a metal layer 16 on the surface of the polymer layer, and teaches that the metal layer is embossed with the polymer layer, resulting in the metal layer substantially conforming to the surface variations of the polymer layer. Id. at column 2, lines 46-51 and figure 2.

7. It is acknowledged that the examples utilized by Lewis only teach reflective layers as suitable for use as the metal layer. Thus, Lewis does not teach a magnetic recording layer, as required by claim 1. However, while the only examples taught by Lewis utilize reflective metal as the metal layer, Lewis teaches that the modulation of the grooves and the metal layer is utilized to provide coded information on the surface of the substrate, and specifically teaches that the "coded information" must be

electronically decoded/mechanically read, i.e. by reflected light, by capacitive voltage readout, and the like, and converted into electrical signals which may be translated into information which may be directly perceived by a human being. Id. at column 3 line 540column 4, line 19). It is once again noted that the invention of Lewis is directed towards metallized information carrying discs, which can be utilized for "such varied uses as.... Computer information retrieval systems." Id. at column 1, lines 14-15.

8. Bearing the above in mind, with respect to the deficiencies of Lewis in teaching a magnetic recording layer, Davis et al. (Davis) teaches a data storage medium that comprises a substrate, a polymer layer having surface features such as pits and grooves, and an additional layer on the plastic layer (page 3, lines 25-28). Suitable additional layers include reflective layers, data storage layers, and protective layers (page 4, lines 1-5), with suitable data storage layers including "any material capable of storing retrievable data," such as magnetic and magneto-optic layers (page 26, lines 25-28, and page 27, lines 1-10). Davis teaches a that exposing the data storage layer to an incident energy field retrieves the data. In particular, this method is suitable for magneto-optical media, wherein a magnetic field or optical laser is utilized to write, but an optical beam utilizing reflecting optics is utilized to read (page 4, lines 12-19).

9. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the magnetic or magneto-optic recording layer taught by Davis for the reflection layer taught by Lewis.

10. One would have been motivated to make this modification doe to the teaching in Lewis that the data storage medium is for use in computer information retrieval systems

and utilizes the modulating grooves and the metal layer to encode data onto a substrate such that the data is only reproducible through the use of a machine which translates the encoded data into data into a form that is more readily perceived by a human, and the teaching in Davis that magnetic, magneto-optic, and reflective layers are equivalent for use in the formation of a layer suitable for recording encoded data on the surface of a substrate having a polymer layer with embossed portions on its surface.

11. With respect to the combination of Lewis with Davis, the examiner recognizes that reflective layers, magnetic layers, and magneto-optic layers are not "the same." However, the prior art clearly teaches their equivalent for use as data storage layers on embossed polymer substrates. Thus, one of ordinary skill would have been motivated to modify the media of Lewis with the magnetic/magneto-optic recording layers of Davis with a reasonable expectation of success.

12. Claim 3 requires the substrate to be disc shaped. This limitation is met as set forth above for claim 1, as Lewis clearly establishes that the media is disc shaped.

13. Claim 4 requires the 1st layer to provide rigidity and mechanical stability to the medium. Although not expressly taught, the examiner takes the position that the substrate taught by Lewis as modified by Davis will necessarily meet this limitation, as the substrate will necessarily be rigid and mechanically stable to some degree.

14. Claim 5 requires the first layer to comprise one of glass, aluminum, aluminum-magnesium alloy, ceramic, and plastic. Lewis teaches that suitable substrates include Lewis teaches the use of Ceramic, Metal, and plastic substrates, including several

specific examples, as shown by column 2, lines 34-45 and columns 15-18, examples 1-9).

15. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a ceramic or polymer substrate as the substrate in Lewis as modified by Davis, as ceramic and polymer substrates are recognized by the prior art to be equivalent materials for this purpose.

16. Claim 6 requires the polymer to be a photo polymerized material. Lewis specifically teaches the use of radiation curable polymers for forming the embossed polymeric layer (column 6, lines 35-50). Thus, the limitations of claim 6 are met.

17. Claims 8-14 require the surface variations to be machine readable patterns (claim 8), such as data bumps comprising encoded data (claims 9-10), protrusions such as bumps, rails, lands and ridges (claims 11-12), or depressions such as pits, grooves, or channels (claims 13-14). As shown by figure 2, Lewis teaches a substrate that has a polymer layer having an embossed pattern. This embossed pattern has elevated portions, which the examiner takes to be equivalent to applicants claimed data bumps/protrusions/lands/ridges/rails. The embossed pattern also has depressed portions, which the examiner takes to be equivalent to applicants claimed depressions and pits/grooves/channels. It is further noted that Lewis specifically teaches that these surface variations comprise encoded that data that is machine- readable (column 3, line 54-column 4, line 19). Thus, these limitations are met.

18. Claims 15-16 require the surface variations to comprise servo patterns and/or tracking patterns. While Lewis does not teach these limitations, However, Davis teaches

a data storage medium that utilizes a polymer layer having surface features such as bumps, pits and grooves. Further, Davis teaches that such features can be utilized for servo patterning, which is well known in the art of storage media to provide a read back signal that allows a read out mechanism such as a head to know its position relative to a track on the disc (page 19, lines 10-20).

19. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a servo pattern in the embossed pattern of Lewis et al. as described by Davis.

20. One would have been motivated to make this modification due to the fact that Davis teaches that embossed features such as pits can be utilized to form a servo pattern, which is well known in the art to provide positional information to a read out mechanism such as a head.

21. With respect to claim 16, wherein the applicant requires a "tracking pattern," the examiner takes the position that a servo pattern is a type of tracking pattern. Thus, this limitation is met as set forth above for claim 15.

22. Claim 17 requires the surface variations to project from the medium a height less than 50nm. Lewis teaches that the depth of the pattern formed in the disc substrate is between 0.03-10μ (30nm-10μ) (column 13, lines 58-60).

23. Therefor it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a pattern having a depth of 0.3μm to form the pattern in the polymer layer of Lewis as modified by Davis, as this is an explicitly expressed suitable depth.

24. Thus, as 0.03μ is completely encompassed by the applicants claimed range, this limitation is met.

25. Claim 20 requires the third layer to comprise a thin film stack including an underlayer, the magnetic recording material, and a protective layer. Regarding these limitations, it is noted that Lewis teaches a specific example wherein an information storage disc is formed by a substrate, an embossed polymer layer on the substrate, a metal reflective layer conforming to the embossed polymer layer, and a protective layer over the metal reflective layer. The metal reflective layer is formed from metals or metal oxides, including Al, Cr, Fe, Sn, in, Ag, AU, and alloys thereof (column 14, lines 27-39).

26. Further, Davis teaches a specific embodiment wherein a magneto-optical storage disc is manufactured by placing a magneto-optical storage layer between a reflective metal layer and a protective layer (page 29, lines 10-15 and figure 20.

27. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the data recording disc comprising a substrate, embossed polymer layer, embossed reflective layer and protective layer taught by Lewis by placing a magneto-optical recording layer as taught by Davis between the reflective layer the protective layer taught by Lewis.

28. One would have been motivated to make this modification in light of the fact that Lewis is directed towards metallized information carrying discs that are suitable for carrying encoded data, the fact that Davis establishes that magneto-optical, magnetic, and reflective layers are equivalent for this purpose, and the fact that Davis clearly teaches that the structure of Lewis (substrate, embossed polymer layer, reflecting layer,

and protective layer) can be converted into a magneto-optical recording medium through the addition of a magneto-optical recording layer between the reflective layer and the protective layer. Further, given the fact that the prior art recognizes the equivalency of reflective, magneto-optic, and magnetic layers as suitable layers for forming metallized information carrying discs, one of ordinary skill would have been motivated and would have a reasonable expectation of success in modifying the structure of Lewis with the magneto-optic layer of Davis.

29. Regarding the requirement in claim 20 that the third layer comprise a stack including an underlay, magnetic recording material, and protective layer, the examiner takes the position that the metal reflective layer, the magneto-optic layer, and the protective layer taught by Lewis as modified by Davis are equivalent to applicants claimed "stack."

30. Claim 21 requires the underlayer to include a Cr alloy and the magnetic recording material to include a Co alloy. Regarding these limitations, Lewis as set forth above for claim 20 teaches that the metal reflective layer can comprise Al, Cr, Fe, Sn, in, Ag, AU, and alloys thereof (column 14, lines 27-39).

31. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize an alloy of Cr as the reflective layer in Lewis as modified by Davis as set forth above for claim 20, as Lewis clearly recognizes the equivalence of Cr alloys to the other materials listed as suitable for this purpose.

32. Further, Davis teaches that suitable data storage layers include Co alloys, as well as other materials (page 27, lines 1-10).

33. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a Co alloy as the magneto-optical recording layer utilized by Lewis as modified by Davis as set forth above for claim 20, as Davis clearly recognizes the equivalent of Co alloys to the other materials listed as suitable for this purpose.

34. Thus, the limitations of claim 21 are met when a Cr alloy is utilized as the reflecting layer and a Co alloy layer is utilized as a magneto-optic layer in the combination of Lewis as modified by Davis.

35. Claim 22 requires the protective layer to comprise carbon, nitrogenated carbon, or hydrogenated carbon. While Lewis only teaches polymer hardcoats as suitable protective layers 9column 14, lines 65-68), Davis teaches suitable protective layers for data storage media include polymeric materials such as polymeric films and diamond like carbon (page 27, lines 17-21).

36. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute diamond like carbon as taught by Davis for the polymeric protective layers taught by Lewis.

37. One would have been motivated to make this modification in lieu of the increased abrasion and scratch resistance one would expect to gain from utilizing a diamond like carbon coating as opposed to a polymeric coating.

38. Regarding the limitations of claim 23, wherein the applicant requires the 3rd layer to contain a buffer layer. The examiner takes the position that this limitation is met as set forth above for claim 22. In this instance, the reflective layer, magnetic layer and the

protective layer taught by Lewis as modified by Davis are interpreted to be equivalent to applicants claimed 3rd layer, with the reflective layer being equivalent to the applicants claimed buffer layer.

39. With respect to claims 24-25, Lewis does not teach the use of a fourth layer of a lubricating material that substantially conforms to the surface variations of the second layer.

40. However, Davis teaches that additional layers such as a layer of lubricant are adventitiously applied over data storage and reflective layers that are formed over embossed polymer layers (page 28, lines 1-10). Further, Davis teaches that the lubricant layer may be applied via conventional means, i.e. sputtering, chemical vapor deposition, plasma enhanced CVD, etc...

41. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to sputter deposit a lubricant layer as taught by Davis over the reflecting layer taught by Lewis.

42. One would have been motivated to make this modification due to the increased slipperiness/abrasion resistance of the surface one would expect to gain as a result. It is the examiners position that a sputter deposited lubricant layer will conform to the surface variations in the polymer layer, as the applicant on page 15-16, lines 27-8 specifically teaches that sputtering is a suitable method for forming a layer that will conform to the surface variations of the polymer layer. One would have selected sputtering in light of the fact that sputtering is recognized as equivalent to the other methods listed as suitable for forming a lubricant layer as disclosed by Davis.

43. Regarding the limitations of claim 26, wherein the applicant requires at least one of the surfaces to be flyable. Although not expressly taught by either Lewis or Davis, the examiner takes the position that this limitation is met by the combination of these references, as the combinations results in a material that meets all of the structural limitations of claims 1-6, 8-22, and 24-25. Absent a showing otherwise, the examiner maintains that the structure of Lewis modified by Davis has at least one surface that is flyable.

44. Regarding claim 27, wherein the applicant requires a substantially rigid substrate, a polymer containing surface variations, a thin film stack substantially conforming to the surface variation, comprising a plurality of sublayers, and including a magnetic recording material, and a lubrication layer substantially conforming to the surface variations, wherein the surface variations are arranged in a machine readable data pattern. These limitations are met as set forth above for claims 20 and 25. The examiner takes the position that the substrate of Lewis as modified by Davis necessarily meets that applicants requirement of being "substantially rigid" as no level of rigidity is specifically required and thus any material can be interpreted to be "substantially rigid." The embossed polymer layer of Lewis as modified by Davis is considered to be equivalent to applicants required polymer layer. The limitation "plurality of sub layers, and including a magnetic recording material" is interpreted by the examiner to require two or more (a plurality) layers, wherein one layer can be a magnetic recording media (including a magnetic recording layer). The reflective layer and magneto-optic layer taught by Lewis as modified by Davis are considered to meet this requirement. Further,

Lewis as modified by Davis teaches the use of a lubricating layer, as set forth above by claim 25. thus, all of the limitations of claim 27 are met.

45. Claim 28 requires the same limitations as claim 27 aside from requiring the substrate to be "flexible" and the embossed patterns to be a machine-readable pattern. The bulk of the limitations of claim 28 are met as set forth above for claim 27. As no level of flexibility for the substrate is required, any substrate can be construed as "flexible" to some degree, and thus the substrate of Lewis as modified by Davis meets this requirement. Further, the embossed pattern utilized by Lewis as modified by Davis has been established to be a machine-readable data pattern, as set forth above.

46. Claim 29 requires a substantially transparent substrate including optically detectable features; a reflective layer to facilitate optical detection of the optically detectable features via reflection of an optical signal, a polymer containing surface variations, a thin film stack comprising a plurality of sub layers, including a magnetic recording material, and substantially conforming to the surface variations, and a lubrication layer conforming to the surface variations, wherein the surface variations are arranged in a machine readable pattern.

1. The bulk of these limitations are met as set forth above for claims 20 and 25. Claim 29 as written requires no particular ordering of the required layers, aside from requiring the lubricant layer and the magnetic layer to substantially conform to thepolymer having surface variations. Thus, the substrate having a polymer coating layer with surface variations detailed above for claim 20 is considered by the examiner to be equivalent to that applicants claims substrate having optically detectable features.

The metal reflective layer conforming to the polymer layer is considered to be equivalent to the applicants reflective layer. The magneto-optical layer and protective layer utilized is considered by the examiner to be equivalent to applicants claimed thin film stack comprising a plurality (≥2) sub-layers and including a magnetic recording material. The lubricant layer detailed above for claim 25 is considered to be equivalent to the applicants claimed lubricant layer. Regarding the transparency of the substrate, Lewis teaches that the substrate may be transparent or opaque, and formed from materials including metals, thermoplastic, thermoset, or filled polymeric materials, and ceramics (column 2, lines 24-45).

2. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a transparent plastic substrate as the substrate in Lewis, as Lewis recognizes the equivalence of transparent polymers to other materials listed as suitable for forming the substrate.

47. Claim 30 is met as set forth above for claims 20 and 25. The examiner once again notes that the instant claim requires no particular ordering of layers aside from requiring the thin film stack and lubrication layer to substantially conform to the surface variations. It is the examiners position that the substrate and embossed polymer layer set forth above for claim 20 is equivalent to applicants claimed 2nd data storage layer. It is the examiners position that the reflective layer detailed above for claim 20 is equivalent to the required 1st data storage layer. It is the examiners position that the magneto-optic layer and protective layer are equivalent to applicants claimed thin film stack comprising a plurality (≥2) layers including a magnetic recording material. Last,

the lubricant layer detailed above for claim 25 is considered by the examiner to be equivalent to the applicants claimed lubrication layer.

48. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as modified by Davis, as applied to claim 1 above, and further in view of Anderson et al. (US4304806).

49. Lewis as modified by Davis does not teach utilizing a polymer that comprises ≥30% by weight epoxy-terminated silanes as radiation polymerizable components, as required by claim 7.

50. However, with respect to this deficiency, Anderson et al. (hereafter Anderson), teaches an information carrying element that comprises a substrate formed from a glass, polymers, ceramics, or metallic material, wherein the substrate is coated with a polymer layer that comprises at least 30% epoxy terminated silanes, wherein the polymer layer is further coated with a reflective layer (column 3, lines 20-65, column 4, lines 3-9 and column 2, lines 1-2). Anderson utilizes light sensitive catalysts to polymerize the epoxy-terminated silanes (column 4, lines 58-62), thus it is clear that these materials are photo polymerizable. Further, Anderson teaches that these epoxy-terminated silanes exhibit good abrasion resistance, and can be manufactured utilizing low temperature and pressure with non-metallic stampers and masters (column 5, lines 1-5 and 58-61).

51. Therefore it would have been obvious to one with ordinary skill in the art to utilize the epoxy terminated silane polymer disclosed by Anderson as the polymer layer utilized in Lewis as modified by Davis.

52. One would have been motivated to make this modification due to the teaching in Anderson that media utilizing epoxy terminated silanes as an embossed polymer layer exhibit good abrasion resistance and can be made at low temperature and pressure via non-metallic stampers and masters.

53. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis as modified by Davis as applied to claims 1 and 2 above, and further in view of Smith et al. (US5739972).

54. Regarding the limitations of claim 31, wherein the applicant requires a removable hard disk drive comprising a housing, and a data storage unit with the same requirements as claim 1. Lewis as modified by Davis is relied upon as stated above to teach a data storage medium utilizing magnetic or magneto optic layers. However, Lewis as modified by Davis does not teach a removable hard disk drive having a housing that utilizes this data storage medium, as required by claim 31.

55. With respect to this deficiency, Smith et al. (hereafter Smith) teaches a data storage system (equivalent to applicants claimed removable hard disk drive) comprising a data storage media, a housing, and a magnetic transducer for reading and writing information to the recording medium (column 4, lines 39-60)

56. Therefore it would have been obvious to one of ordinary skill in the art to utilize the media of Lewis as modified by Smith in the data storage system detailed by Smith.

57. One would have been motivated to make this modification due to the fact that Smith teaches a data storage apparatus that utilize magnetoresistive heads to read and write data to a recording medium, and the fact that Lewis as modified by Davis teaches

a recording medium that utilizes a magnetic or magneto optic recording layer, which can be read by a magnetoresistive head such as that utilized by the system of Smith.

Response to Arguments

58. Applicant's arguments filed 7/30/03 have been fully considered but they are not persuasive. In the instant case, the crux of the applicant's argument is directed to the appropriateness of the examiners combination of Lewis with Davis. In particular, the applicant contends that one of ordinary skill in the art would have no motivation to modify Lewis, which the applicant opines to be directed solely towards optical media such as video discs, with the teachings of Davis to arrive a the data storage medium of the instant application. The applicant further holds that the examiner could not have come to realize this combination without utilizing the applicant's specification as a roadmap, and thus the combination was made using impermissible hindsight.

59. This argument is not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Lewis is directed towards "information carrying discs" which are "useful in carrying coded information which is convertible to electrical signals for such varied uses as sound recordings, audio/visual recordings, or computer information

retrieval systems" (column 1, lines 8-15). Thus, while the examiner acknowledges that the bulk of the examples of Lewis are directed towards video discs, one of ordinary skill in the art, reading the opening statement of Lewis, would clearly recognize that the structures taught could be utilized for other applications then solely video discs. Further, Lewis teaches that the metal layer which is utilized to carry encoded data, wherein the encoded data is defined as data which is decodable into electronic signals which can subsequently be converted into data which can be perceived by a human being. This encoded data is read by a machine via reflected light, capacitive voltage readout, **or the like** (column 4, lines 5-19). While the example metal layers of Lewis are reflective layers for video discs, one of ordinary skill in the art, reading the above statement, would clearly recognize that the invention of Lewis could be utilized for a much broader purpose then simply video discs. Bearing the above in mind, Davis **clearly** establishes the equivalence of reflective layers, magnetic layers, and magneto-optical layers as suitable metal layers for storing encoded data. The applicant argues that the mere recitation of these layers as alternatives does not make them equivalent. The examiner agrees that these layers are "not the same" and do not function in the same manner. However, for the purpose of recording encoded data, the prior art clearly recognizes the equivalency of these layers. Given that Lewis teaches that the information recording discs are suitable for computer information retrieval systems, and given the fact that magnetic, optic, and magneto-optic media are well established as suitable for use in computer based storage retrieval, one of ordinary skill in the art would have been motivated to modify the structure of Lewis with the teachings of Davis to arrive at the

instantly claimed invention, and would have had a reasonable expectation of success in doing so. Thus, the basis for the combination of these references is grounded solely in the prior art, not the applicant's specification. Accordingly, the applicant's arguments with respect to the appropriateness of the prior art combination and the motivation of one of ordinary skill in the art are unpersuasive.

60. The applicant's remaining arguments hinge on the argument addressed above. As the above arguments have been deemed unpersuasive, the remaining arguments are also unpersuasive.

Conclusion

61. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

NJU

nju

Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700